THE JOHNS HOPKINS UNIVERSITY

BALTIMORE, MARYLAND 21218

DEPARTMENT OF BIOLOGY

24 June 1991

Mrs. Lillian Hertzberg
American Committee for
The Weizmann Institute of Science
51 Madison Avenue
New York, NY 10010

Dear Mrs. Hertzberg:

Meyer Weisgal used to say that the Weizmann Institute was among the six most outstanding scientific institutions in the world. I remember a number of occasions where I suggested that he make it the first twelve rather than the first six, just to be on the safe side. His appraisal, however, back in the early 60's, was very close to the truth. The Weizmann Institute was certainly scientifically and esthetically one of the most stimulating institutions that I have been associated with. Michael Sela came to my laboratory at the National Institutes of Health in 1956, having finished his doctoral degree with Efraim Katzir. We became very close friends and our friendship induced me to visit the Weizmann Institute for the first time in 1958. Four years later I had the good fortune of being elected to the Board of Governors and have attended, I think, every meeting of the Board since that time. I have, of course, become very well acquainted with a large fraction of the staff at the Institute, although I must admit that my own personal deficiencies in the more mathematical aspects of science have prevented too close an associated with the computer group and the physics group, in general. In terms of computer technology, however, I must mention that I early became well-acquainted with Schneor Lifson and, later, Smil Ruhman and followed the rapid progress of the computer division with great admiration ever since.

My main association has been with Efraim and his students, many of whom have been or are chairmen of those departments more closely related to the biological sciences. The year that I spent with Michael Sela and Ruth Arnon in the Laboratory of Chemica Immunology was enormously stimulating and educational. Their work was then well underway in the field of the synthesis of polymers with strong antigenic properties, and I had the good fortune of working with them for a year on a particular polymer which bore a close relationship to portions of the structure of the enzyme lysozyme. Antibodies against this synthetic material proved to be a strong binder of lysozyme and inhibited the action of this enzyme. Their work has, in recent years, involved more and more, a fundamental approach to the understanding

and treatment of multiple sclerosis and preliminary hospital trials have begun to show definite effects on the improvement of patients suffering from this disorder. The Ullman building is also highly influenced by the leadership of Katzir's students and associates. Nathan Sharon and his colleagues have developed a broad program on the study of so-called ~~ligands~~ lectins, natural products that associate tightly with a number of cell types and various molecules in the human body. Perhaps most impressive has been their ability to use these lectins in the pre-treatment of blood samples to remove unwanted cells and other materials from, for example, the bodies of so-called "bubble babies" -- children unable to withstand the noxious effects of many environmental materials and which have thus allowed them to escape their isolation into a normal world. A good deal of this work was done in collaboration with the Sloan-Kettering Institute in New York City. A particularly active member of the Ullman group has been Meir Wilchek. Meir, who spent a year in my laboratory at the National Institutes of Health, was a central figure in the development of what is called affinity chromatography -- a technique which enables the isolation of a wide variety of biologically important materials by passage of the crude starting material through columns carrying so-called ligands that specifically bind the substance in question. This procedure has become an internationally important technique and, indeed, the Second International Congress on Affinity Chromatography is to be held this year in Yokohama where many, many scientists from all over the world will report and discuss work in this area. Dr. Wilchek is pursuing this approach with vigor and has developed new affinity systems of extremely broad usage and value, the central theme of which involves the extremely tight binding of biotin with avidin. Labelling compounds with biotin makes them highly susceptible to strong binding to the avidin-bearing columns and permit ready isolation and characterization of the material of interest.

My closest connection in the Organic Chemistry Department has been Avram Patchornik who is, in a sense, "Mr. Peptide Synthesis" at the Institute. He has trained a number of students and has developed interesting equipment for the synthesis of complex peptide materials of biological interest.

The Polymer Department during my early visits to the Weizmann Institute was headed by a really towering figure, Aaron Katzir, who was not only an outstanding scientist but was a remarkable philosopher and esthete. His untimely death at Lod Airport as a result of a terroristic attack by Japanese terrorists resulted in the Polymer Department being inherited by Professor Henryk Eisenberg. Indeed, as an editor of Advances in Protein Chemistry, I might mention that I just received an outstanding chapter for this annual volume by Dr. Eisenberg and his colleagues on the enzymes of halophilic bacterial in the Dead Sea. He and his group continue to turn out exciting and fundamental discoveries in this and other areas of polymer science.

In the mathematicl and physics area, I must mention Professor Lee Segal who has been involved for a number of years with the creation and evaluation of mathematical models of biological systems. He and his students certainly form a highly important core in the research on this topic throughout the world.

As I list these particular individuals and projects, I cannot help but mention that a visit to the Weizmann Institute compared to any other laboratory in the world is always stimulating and highly educational, and involves contact with individuals who are dedicated to their work and, perhaps even more important, are friendly and helpful individuals in terms of scientific interaction and education.

I should, perhaps, mention a subsidiary organization related to the Weizmann Institute known as Yeda. Yeda serves as a means by which investigations with possible commercial merit can be shown to industrial groups and private investors interested in the further development in a distribution of both ideas and processes to the public. Although Yeda is not an extremely large organization, it has managed over the years to build up a clientele in the commercial sector that brings in a significant amount of financial support to the scientific activities of the Weizmann Institute. I must mention the important work that has gone on and is still proceeding with great vigor in the group of plant scientist individuals. They have produced a number of important discoveries related to the early origins of such materials as wheat and have set up an important network of interaction between the Institute and farming communities in Israel for the testing and further development of such biological discoveries.

A most recent addition to the Institute which occurred only two years ago was the creation of the Kimmelman Center for the study of macromolecular structure and function. This division of the Weizmann is concerned with the detailed structure at the molecular level of large molecules such as proteins. Such studies permit the correlation of structural detail in macromolecules with their function, and are a strong influence in the development of much of our knowledge of structure-function in natural substances. One individual, Ada Yonath, who has been in the X-ray crystallographic area for a number of years has made an enormously impressive impact in the study of so-called ribosomes -- very small components of cells that are involved in the body's synthesis of protein molecules. She and others in that department certainly constitute one of the outstanding X-ray-crystallographic units in the world of macromolecular study.

In the physics area (about which I know relatively little), I should mention first the so-called Koffler tower -- a great high structure which permits the formation of heavy atoms which can then be directed to the bombardment of molecules of various sorts with resulting development of information on structure and intramolecular action. Another tall structure finished only in the last few years is the Kay tower for the study of solar energy and its application. This organization headed by Israel Dostrovsky is using the highly concentrated energy of the sun to study chemical reactions at extremely high temperatures and to work out methods for converting the solar energy into transmissible forms such as gases that could, in principle, be conveyed from one location to another thousands of miles away in pipes. The project will undoubtedly have serious and very useful importance in the coming years.

Finally, I would like to say a word about the general ambiance at the Institute. There is a sense of cooperation and friendliness throughout, visitors whether professional or otherwise are treated with cooperation and kindness, and the entire Institute under the influence of its new president, Professor Haim Harari, an innovative and energetic man, will certainly continue to be one of our outstanding scientific centers.

Sincerely,

Christian B. Anfinsen
Professor of Biology

CBA:djh